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## **Fulayj – a late Sasanian fort on the Arabian coast**

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### **Introduction**

By comparison with the Roman empire, knowledge of Sasanian military expansion is still very limited. This is partly due to the relative paucity of historical sources, but also to the lack of related archaeological fieldwork. Current fieldwork along the frontiers of the Sasanian empire is making an important contribution towards improving our knowledge, but there is still much to be learned (Sauer *et al.* 2013; 2015).

One region which attracted occasional Sasanian interest is Eastern Arabia, specifically Bahrayn (Bahrain/eastern Saudi Arabia) and ‘Uman (northern Oman and UAE) - which is the focus of this paper. It has been argued that these areas were important for control of trade, defence of the western frontier and access to mineral resources (e.g. Daryaei 2003: 9; Piacentini 1985; 1992: 124-5; Morony 2001-02). However, the early Islamic sources on which the history of this period is based suggest that the Sasanians launched expeditions into the region only when it was necessary. For example Ardashir in the early third century and Shapur II in 325 AD, which may both have resulted in a period of formal control (Potts 1990: 232-4, 239-41; 2008; Tabari 1.820, 1.839 = Bosworth 1999: 15-16, 54-57) - indeed ‘Uman was included in Shapur II’s (242-270 AD) list of imperial possessions (Maricq 1958: 295-360; Potts 1990: 329-330; 2008; Bosworth 1983: 603; Huyse 1999a: 23-24; 1999b: 38). However, the nature and durability of Sasanian control is unclear and there is ambiguity about the degree to which ‘Uman in particular was affected (Kennet 2008: 55-56; Potts 1990: 330; Ulrich 2011: 381). Following these campaigns it is not until Khusraw I (531-579 AD) that there are indications of attempts at direct control (Potts 1990: 335-8; 2008; Tabari 1.898-899, 1.946, 1.958-9 = Bosworth 1999: 159, 237, 253). In between these times, Sasanian control was exercised through the client Lakhmid dynasty at Hira in Iraq, but the extent and degree of their control is unclear (Kister 1968).

The archaeological evidence for this period in ‘Uman is problematic. Until recently it was believed that ancient field systems marked a Sasanian-period apogee of agricultural development (Wilkinson 1977: 50; 130-133). However, a recent review of the archaeological evidence challenges this, suggesting that the period is amongst the least well represented in the region’s archaeology, and that it was a time of low levels of activity and population (Kennet 2007).

It is important to make a distinction between ‘Sasanian-period’ activity – that is to say activity dating to this time, and direct Sasanian activity itself. Whilst archaeological evidence for Sasanian-period settlement is already sparse, there is no unequivocal archaeological evidence of direct Sasanian settlement in Eastern Arabia. Most of the reliable Sasanian-period evidence has only recently come to light and consists predominantly of scattered cairn burials belonging to a local tradition but containing occasional Sasanian artefacts. Their dispersed nature and lack of associated settlements suggest they belonged to nomadic populations. Very few settlements are known: it is almost certain from historical sources that Suhar was occupied, although no incontrovertible archaeological evidence has yet come to light (Wilkinson 1979: 888-889; Kennet 2007: 97-100). In addition, a few early Sasanian fortified elite residences are known from ed-Dur and Mleiha (UAE), which appear to have been abandoned by the 3<sup>rd</sup> century AD. There are Kush and Khatt in Ras al-Khaimah (UAE), and Jazirat al-Ghanam in the Musandam. Jazirat al-Ghanam consists of a few stone structures associated

with Sasanian-period pottery on a remote island. This might be a Sasanian outpost, but it is uncertain (de Cardi 1972). Kush and Khatt are more substantial agricultural settlements. Excavations at Kush have revealed an late Sasanian occupation sequence (Kennet 1998; 2009). The nature of the occupation is not clear; arrowheads and chainmail suggest a military focus but it is impossible to say by whom.

### **Fulayj FJ3.S3**

Despite the paucity of evidence new sites are occasionally discovered. One such is the fort at Fulayj (FJ3.S3) near to Suhar on the Batinah Coast of Oman (Fig. 1, Fig. 2).

The site was discovered by al-Jahwari in the course of the *Sahm Survey Project* in 2012 (Al-Jahwari *et al.* 2014: 85-6 Area B, figs 4, 5, 11). It was identified by Kennet as Sasanian by the plan and surface pottery. Two-seasons of excavation were undertaken by the European Research Council *Persia and its Neighbours Project* (directed by Sauer) with Priestman as field director.

The Batinah is a 240km long coastal plain, most of which consists of uncultivable gravels, except for a narrow coastal band which has long been the focus of agricultural production and population.

Fulayj (FJ3) is a large archaeological site complex consisting mostly of Iron Age (1300-300 BC) remains on an inter-fluvial terrace on the Wadi al-Mahmum, 2km from the village of Falaj al-Harth and its date-palm groves. The location is 13.5km from the coast at the point where the outwash plain develops more contoured terraces towards the mountains (Fig. 3). It is associated with abandoned fields along the wadi channel, which appear to have been irrigated by run-off irrigation or *aflāj*.

Fulayj is situated in the north of the Batinah 30km south of Suhar, which historical sources indicate was important during the Sasanian period (Wilkinson 1979). Just behind Suhar the Wadi Jizzi was an important route to the interior. Copper is present in the area: recent work at Bronze Age Dahua, 11km to the east, has yielded evidence of ancient copper working (al-Jahwari pers. obs.).

FJ3.S3 is located at the north-western end of the complex (UTM 40R 479290/2663670). It consists of a 30x30m square stone fort, oriented 14 degrees NNE (Fig. 2, Fig. 4). The walls are c.2.65m thick and stand 40cm above the present surface. It has four, solid, U-shaped, corner towers (Fig. 5). There is a single narrow, eastern entrance 1.62m wide, flanked by rounded buttress towers (Fig. 6). The top of the wall is levelled to a flat, even height all around, which, together with the limited stone tumble, suggests that the upper courses may have been mudbrick.

The plan is regular. The stone is not dressed but has been carefully selected for flat faces and fine jointing with large, irregularly-coursed blocks packed with small stones bound with lime mortar (Fig. 7). The quality of construction suggests experienced builders and careful planning.

Excavation has revealed internal mudbrick walls but the only internal structures visible on the surface were a few rough stone constructions against the inner face of the main wall, associated with 17<sup>th</sup> century and later pottery.

There is little pottery on the surface within the fort, but Sasanian-period imports are scattered outside, namely SMAG, LISV, TORP, TURQ (including Type 64) and IRPW (Fig. 10). These become sparser as one moves away, with the exception of an area to the south associated with lime burning kilns (Fig. 8). The Sasanian-period pottery is mixed with a dense scatter of Iron Age wares resulting from earlier occupation.

The fort's military aspect is very obvious: the thickness of its walls, its size and layout, the scarcity of evidence of domestic activity and the lack of associated settlement. The fort was built principally to withstand attack. The corner towers and the narrow entrance flanked by buttress towers, were designed to optimise security.

### *Excavation*

The excavations were intended to elucidate construction and layout, and the depth, nature and date of occupation.

The base of the walls was reached showing them to stand up to 126cm (Fig. 7, Fig. 9). Below the surface traces of lime mortar were revealed between stones, linking to the lime kilns mentioned above. One of the kilns was excavated; the C14 evidence and pottery indicate that they were built and used during the fort construction (Table 1: 13).

Excavations within the fort in trenches A, B, F and G, totalling 25m<sup>2</sup>, all revealed a similar sequence. The fort walls were set within a shallow foundation excavated into Iron Age deposits. The backfill contains Sasanian-period pottery: e.g. SMAG and SBBW in the Trench G foundation fill (context G.016) (Fig. 10). In Trenches A, B and G this foundation deposit is covered with a shallow occupation surface relating to use of the fort. In Trench F a 4m x 28cm mudbrick wall abutted the north wall, associated with a series of compacted clay floors. The wall appears to have been part of a second phase internal room built against the east wall inside the entranceway. Following subsequent abandonment of the fort, large quantities of fine, largely sterile, sediment built up against the wall through natural processes and, possibly, the erosion of a mudbrick superstructure. Further excavation would be required to determine the full internal layout.

### *Dating*

The construction and main use of the fort is dated by AMS dates and pottery. Thirteen AMS dates were obtained from Trenches A, B and C; from the pre-fort occupation, from the main wall foundation trench and initial occupation phase; from a camp fire associated with an early abandonment phase; and from the accumulation of sediment against the walls high in the sequence (Fig. 9). Of these, two (Table 1: 1 & 2), from the uppermost layers of Trench A, date to the 15<sup>th</sup>/16<sup>th</sup> century AD or later and relate to the late structures mentioned above. Five date to the early 5<sup>th</sup> to mid-6<sup>th</sup> century AD (Table 1: 5, 8, 10, 11, 13) – greater precision being limited by the calibration curve. They relate to the construction and main occupation, including the lime kiln in Trench C. Two samples (Table 1: 3 & 4) come from layers overlying the main occupation and probably relate to abandonment/ephemeral later use; the later sample (3) comes from wind-blown sand and ash (Fig. 9: A.014). This later occupation belongs to the mid 7<sup>th</sup> century – possibly starting in the later 6<sup>th</sup>. Three further samples (Table 1: 6, 7 & 12) relate to earlier occupation. At least two of these are residual and are not relevant here.

The excavated ceramic assemblage is small: 2,313 sherds were retrieved, most of which come from underlying Iron Age layers. Only 346 sherds are associated with the primary occupation (Fig. 10). The closest assemblage comparisons are with Jazirat al-Ghanam (de Cardi 1975: fig. 8) and phases I-II at Kush (Kennet 2004: table 41). There are also parallels with Sir Bani Yas (Carter 2008: figs. 13-16), Area D at Jazirat al-Hulaylah (Sasaki & Sasaki 1996: figs. 46, 48-49), al-Qusur (Patitucci & Uggeri 1985) and Kush III (Kennet 2004: 13-18), which are dated c. mid-7<sup>th</sup> to mid/late-8<sup>th</sup>-century. However, elements of these later assemblages are missing, including carinated glazed bowls,

Honeycomb ware, jars with stamped rosettes, and cream torpedo jars, suggesting that most of the Fulayj material is earlier (Kennet 2004: TURQ Type 72, HONEY; Priestman 2013: TORP.RG, STAMP).

Combined, this evidence sets out a robust chronology. It seems clear that the fort was constructed and first used during the 5<sup>th</sup>/6<sup>th</sup> centuries AD. This was followed by continuous occupation until the mid-7<sup>th</sup> century, or by a period of abandonment and a second period of use at that time. After this there is no evidence of use until the 15<sup>th</sup>/16<sup>th</sup> centuries and later.

How does the fort compare with other Sasanian installations? It differs distinctly from forts on the Gorgan Wall, which, whilst also provided with projecting towers, are much larger, brick-built and with oblong barracks inside. Architecturally closer is the contemporary hinterland fort of Buraq Tappeh (c. 70x80m) with a central courtyard and accommodation alongside the tower-reinforced walls (Nokandeh *et al.* 2016: 575). One finds closer parallels of similar size, with four corner towers and a projecting gate (with or without interval towers) on the Iranian Plateau and on the south-western approaches to Mesopotamia (Kleiss 1993: 185-188; Mohammadifar & Amini 2015-16: 106-108; Finster & Schmidt 1977: 10-12, 44-54; see Amin Ali & Deroche 2016 for a similar late Sasanian monastery). Unlike the massive fortifications in the north, Fulayj-type forts were designed for policing internal territories or thinly-populated desert frontiers.

Similar small forts with round/U-shaped corner towers were also built in Central Asia (Grene & Rapen, 2013: 24-25) and across the Roman World from the late 3<sup>rd</sup> century AD (Gregory 1997a: 128, fig. 6.1; 1997b: 171-173, 181-185, 199-203, 206-210; 1997c: figs. D7.1; D9.1; E3.1; E4.1; E6.1; E7.1; Lenoir 2011: 296-298, figs 34-41, 149; Bondoc, 2009: 35-36, 231, 245 figs. 3-4; Garbsch, 1970: 15, figs. 22-23; Hedinger 1998; Rizos 2015: 663, fig. 3). The late-Roman fort of Ain Labakha in Egypt is smaller, but its walls survive to 11.5m, providing an idea of how imposing the fort may have been (Reddé 1999: 380, 390-393). Fulayj follows a trend in defensive architecture from Western Europe to Central Asia, rather than a specifically Sasanian or Roman military tradition.

## Discussion

To conclude it is worth considering why the fort was built at this location, isolated and some distance from the fertile coastal plain with no obvious links to occupation or activity. A number of points are worth making:

U-shaped corner towers were introduced to Eastern Arabia at around the same time as the rest of the Roman/Sasanian worlds: the earliest examples being the ed-Dur Area C fort, from the 1<sup>st</sup>/2<sup>nd</sup> century, and the Area F fort in the mid-2<sup>nd</sup> to mid 3<sup>rd</sup> century (Mouton, 2008: figs. 55, 106; Lecomte 1993; Mouton & Schiettecatte 2014: 67-69). The ed-Dur Area C fort is a closer parallel but the proposed date requires verification (Al-Qaysi 1975: 106-8; Mouton 2008: 89-91; Potts 1990: 275-6, 300). The date is also a problem with the larger fort at Qala'at al-Bahrain, for which a pre-Islamic date is most likely (Kervran 2013). Certainly by the late Sasanian/early Islamic period, such towers were the norm in this region, as is demonstrated by Siraf, thought to be Sasanian but possibly early Islamic in date (Priestman 2005), and the unpublished Building 5 at Jumairah, Dubai, (UTM 40R 322780/2787890) (Potts 1990: 300).

The forts at Mleiha Areas CW and H, and ed-Dur Area F were in use until only very early in the Sasanian period (Benoist *et al.* 2003; Mouton & Schiettecatte 2014: 59-62; Mouton *et al.* 2012; Kennet 2005: 113). With the possible exception of the small house-tower at Kush (Kennet 2009: 144-149), Fulayj is unique in that it is the only fort in Eastern Arabia dated to the late Sasanian period (i.e. 5<sup>th</sup>/mid-7<sup>th</sup> century). Fulayj is different to the ed-Dur/Mleiha forts in that it is isolated rather than being associated with a settlement; it has very thick, solid-stone, lime-mortared walls and has

yielded few finds, suggesting a sparse occupation. This stands in contrast to the earlier forts, all of which are located within settlements, have only varying degrees of defensive capability, and - in two cases at least – have a rich, luxury domestic assemblage. Fulayj has the appearance of having been built and manned by a professional army rather than being the fortified residence of a local potentate. Given the apparent lack of any political structure in ‘Uman at this time capable of such undertakings, it seems highly probable that it was built by the Sasanians themselves.

The unusual ceramic assemblage reinforces this impression. It is dominated by coarse grey tubular ‘vessels’ in a probable local fabric, which are unusual in being open at both ends. They may have been used during construction. The only other Sasanian-period ceramics are imports originating in the Sasanian heartland of Iraq and Iran, with smaller quantities coming from South Asia. This suggests a degree of external provisioning and reinforces the idea of occupation by a foreign military force.

As mentioned above, historical sources indicate renewed Sasanian interest in Arabia during the reign of Khusraw I (531–579 AD), which may have included some military construction (Potts 1990: 335–338; 2008; Tabari: 1.985-986 = Bosworth 1999: 290–292). Some scholars have conjectured that a military force might have been placed in ‘Uman at this time, though the evidence is weak (Potts 2008: 210-11; Munt forthcoming). However, the empire-wide reorganization of Sasanian defences from the 5<sup>th</sup> century to Khusraw I provides a context for the construction of Fulayj.

What was the rationale behind the construction of a fort in this location? Aside from copper in the foothills - typical of the area - it is not situated close to any route, settlement or resource. It is difficult to imagine that it had much military value in isolation. On the other hand, it would make sense had it been part of a chain of forts separating the coastal plain, which has long been the main focus of agriculture and occupation (Kennet *et al* 2016: 155). Parallels exist: a chain of probably Sasanian forts guarded the approaches to the Khandaq Shapur Canal and the Euphrates (Finster and Schmidt 1977; Lawrence and Wilkinson 2017: 105-106), a military control line similar to the fortified Gorgan, Tammisheh, Darband and Ghilghilchay walls. Sasanian fortifications along the key route into Transcaucasia may have offered safe shelter for military forces or officials (Lawrence and Wilkinson 2017: 105-106, 114-116; Sauer *et al.* 2017: 257-258). Some of them are a day’s march apart, as are examples in Fars (Ghasemi 2012). A chain of forts, guarding access to fertile land or strategic supply routes, was a common concept during this period across the Roman and Sasanian worlds. The Fulayj fort may similarly have been a staging post on an inland route, intended to protect the approaches to the coastal plain and perhaps a port. A larger, probably Sasanian fort with projecting corner and interval towers, at Ratto Kot near the Indus mouth (Kervran 1994: 337-339), perhaps also secured access to the interior and the empire’s strategic and commercial interests across the Indian Ocean.

While these ideas remain to be tested through remote sensing and fieldwork, there is further evidence to support this interpretation. Firstly, the treaty that is said to have existed between the Arabs of the interior and the Persians occupying the coastal areas. This is reported in the *Ansāb al-‘Arab*, dated to the late 10<sup>th</sup> century. It was discussed by J.C. Wilkinson in 1973 and has since formed the basis of our understanding of late pre-Islamic Oman:

“There was a peace treaty (muhādana) between them [the Persians] and the family of al-Julandā in Oman, in which [it was stipulated] that there would be 4,000 asāwira and marāziba together with a tax collector for them there nearby the kings of the Azd. The Persians would stick to the coastal plain (al-sawāḥil wa-shuṭūṭ al-baḥr) and the Azd would be kings in the mountains, the desert and other such places on the fringes of Oman. All affairs were to be in their charge” (al-Awtabi: 762. Munt forthcoming).

It is impossible to know how reliable this information might be, particularly bearing in mind it was written around 350 years later than the events described. Munt emphasises that the date of the treaty is uncertain, and may refer to a later period (Munt forthcoming). Nonetheless, such an arrangement might have necessitated a defensive line along the back of the plain and the environs of Suhar.

A second piece of evidence is the presence of Sasanian-period finds in isolated cairn burials in the interior. Examples are the burial with Sasanian seals from al-Madam (Kutterer *et al.* 2015), the possible Sasanian pottery from cairns in the Wadi Jizi (Düring & Olijdam 2015: 102-3), Jabal Emailah and Jabal Buhias, and Shimal in Ras al-Khaimah (Benton & Potts 2010; Potts 1997; Jasim 2012: 263; Vogt & Franke-Vogt 1987: 45-8, fig. 30). Other unpublished examples have recently come to light 15km inland from the coast at Liwa, north of Suhar, and the Wadi al-Arad where as many as 50 tombs are located (S. Laurenza pers. comm.). It seems certain others will come to light. The precise date of these tombs is still unclear: one at Liwa contains a coin of Hormizd II (303-309 AD), whilst one from al-Madam has a 5<sup>th</sup>/6<sup>th</sup> century C14 date. The armour from another has been dated to the late Sasanian period (Kutterer *et al.* 2015: 46; Potts 1997). The lack of related settlements suggests that these are all that remains of nomadic Arab tribes who occupied the interior during the Sasanian period. It was the management of the relationship with these groups that was perhaps the rationale behind the construction of Fulayj.

This pivotal period in the late pre-Islamic history of 'Uman is difficult for historians and archaeologists. The paucity and problematic nature of the evidence make it impossible to come to firm conclusions. In this context the discovery of a late Sasanian fort is important new evidence. It is the first such structure and provides insights into the way that Sasanian control was exercised, and into the political-economic geography of 'Uman in the period preceding Islamisation. The AMS dates from the site strengthen confidence in the regional ceramic chronology.

If the interpretation presented here is correct - namely that Fulayj is the product of the Sasanian military - then it is evidence that even in Eastern Arabia, a region that seems otherwise to have bucked the broader trend of late-Sasanian economic growth, and cultural/political integration (e.g. Payne 2014), there is evidence of strategic investment in territorial control. When set alongside frontier defences elsewhere in the empire, including northern Iran, the Caspian, the Caucasus and the margins of Iraq, Fulayj provides a further, important contribution to our understanding of the scale and reach of the Sasanian state and its growing power and organisational capabilities at this time (e.g. Howard-Johnston, 2014: 148).

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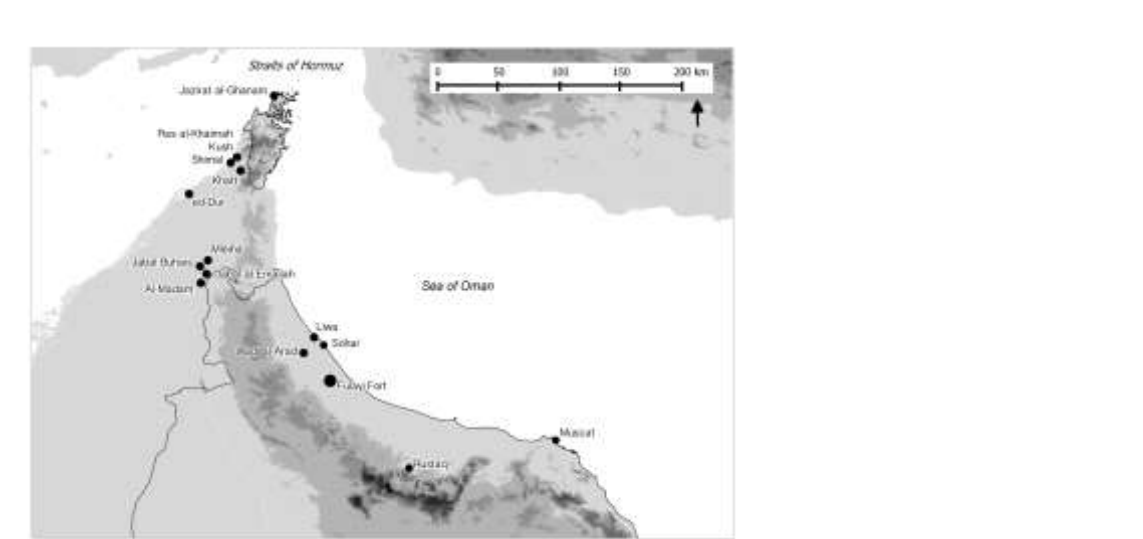
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## Figures



*Fig. 1: Map of northern Oman and the UAE showing the location of sites mentioned in the text.*



*Fig. 2: Kite aerial photograph of the Fulayj fort from the northeast (kite photo Mark Woolston-Houshold).*

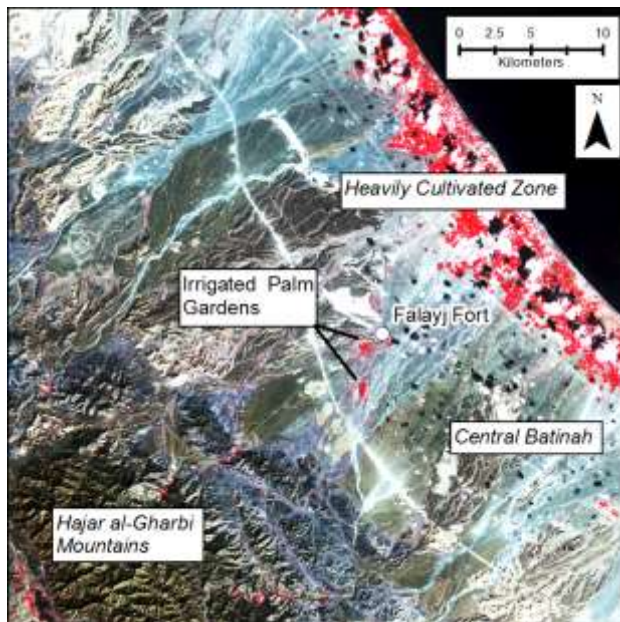


Fig. 3: Map showing the location of Fulayj in relation to the surrounding geography of the Batinah. Based on a colour infrared Landsat 8 image (bands 5,4,3) taken on June 1, 2015. Healthy vegetation appears bright red. Image courtesy of the U.S. Geological Survey (map by Dan Lawrence and Kristen Hopper).

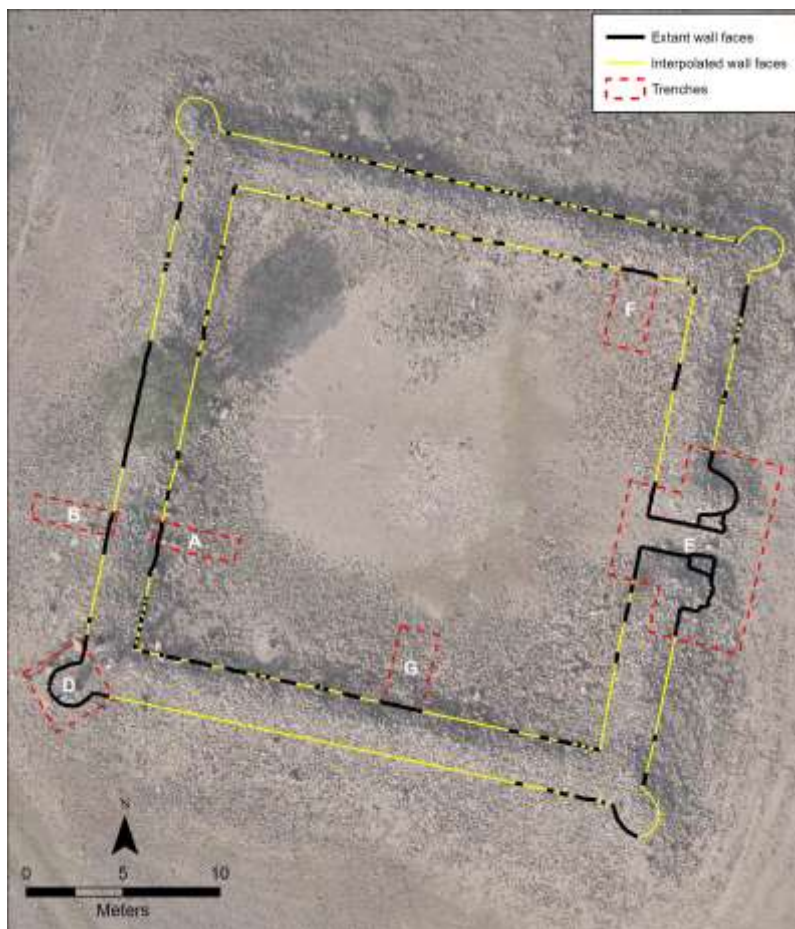


Fig. 4: Plan of the Fulayj fort showing the location of walls and trenches (kite photo Mark Woolston-Houshold; figure Kristen Hopper).



*Fig. 5: Oblique view of the southwest corner tower in Trench D.*

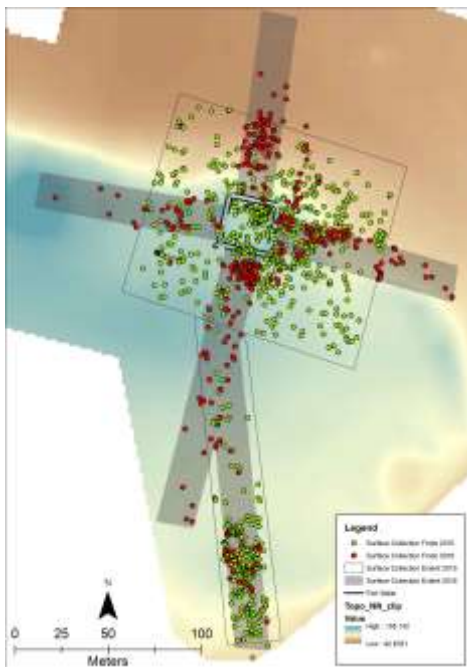


*Fig. 6: Pole photograph of the entrance way (Kristen Hopper).*





*Fig. 7: View of the interior face of the main wall in Trench G showing the regular construction style.*



*Fig. 8: Plan showing the concentration of Sasanian-period pottery recorded on the surface around the fort and the lime kilns to the south.*



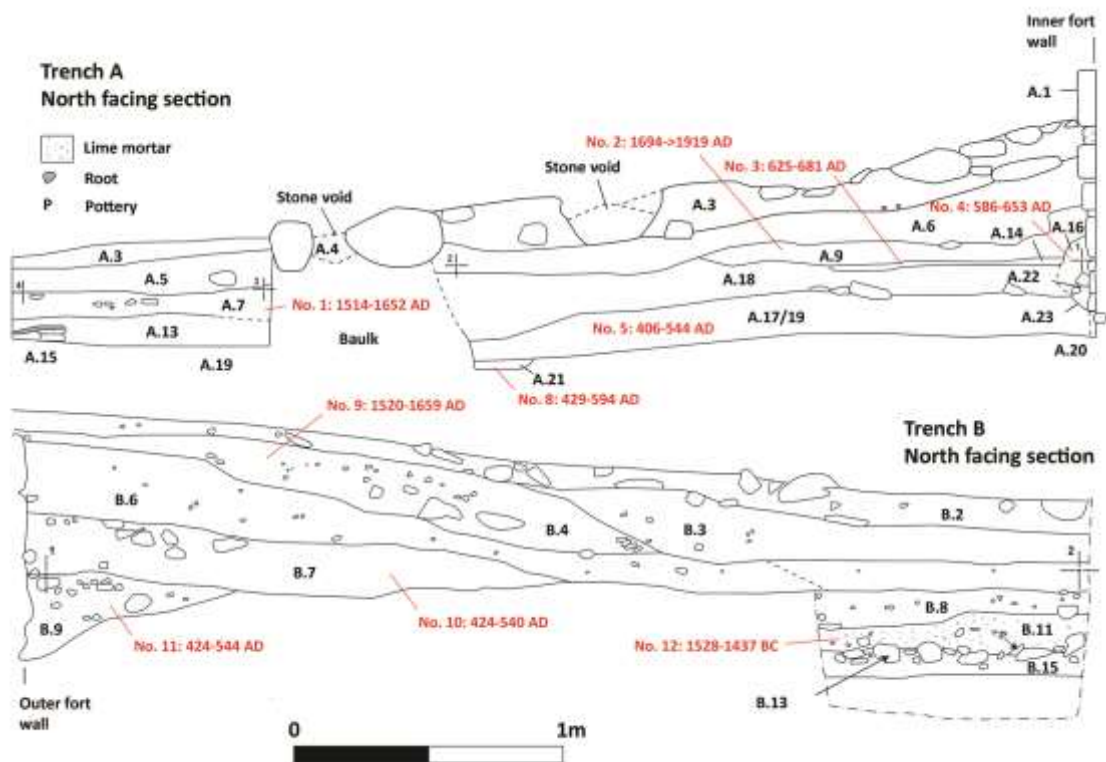


Fig. 9: North-facing sections through Trenches A and B on the interior and exterior of the western side of the fort.

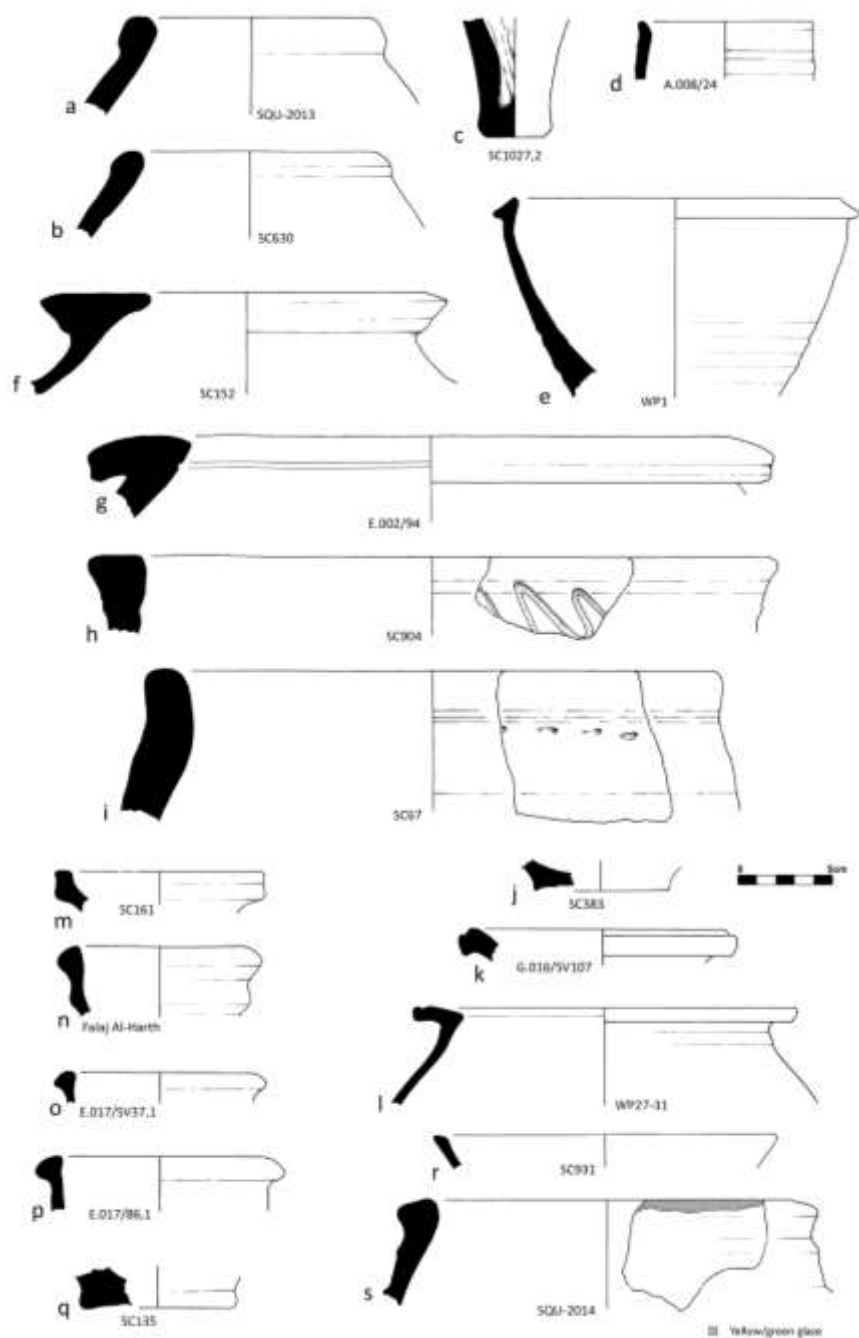


Fig. 10: Selected diagnostic pottery associated with the occupation of the fort: a-c = TORP; d-e = SMAG; f-l = LISV; j = IRPW; k = SBBW; l = Indian black painted; m-r = TURQ (turquoise); s = TURQ (yellow green, Type 64). See Kennet 2004 for a description of these classes and types.

**Table**

No	Context	Beta Lab No	Conventional Age	2 Sigma calibration	Sample description	Description
1	A.007	414253	297 ± 22	1514-1652 AD	Dicot heart wood, tyloses present	Deposit at east end of trench high up within the sequence
2	A.009	414254	81 ± 20	1694->1919 AD	Unidentified round wood	Deposit sealing the burning layer (A.014)
3	A.014	412641	1370 ± 23	625-681 AD	<i>Chamaerops</i> young axis	Thin burning deposit against the fort wall above the foundation cut
4	A.016	412642	1434 ± 21	586-653 AD	<i>Chamaerops</i> petiole	Deposit resting against the fort wall above the foundation cut
5	A.017	414255	1585 ± 30	406-544 AD	<i>Prosopis</i> heart wood tyloses present	Occupation deposit into which the fort wall foundation cut was made
6	A.018	414069	3980 ± 29	2575-2460 BC	Snail shell	Early fort occupation layer, appears to be residual snail shell
7	A.019	414256	4192 ± 24	2889-2678 BC	Snail shell	Early fort occupation layer, appears to be residual snail shell
8	A.021	414257	1530 ± 20	429-594 AD	<i>Prosopis</i>	Deeply stratified deposit seemingly below the elevation of the fort wall foundation cut
9	B.004	412646	284 ± 20	1520-1659 AD	<i>Ficus</i> round wood with outer cortex	Sloping deposit high up in sequence
10	B.007	414258	1573 ± 20	424-540 AD	<i>Prosopis</i> fungal hyphae	First occupation deposit formed on top of the foundation cut fill
11	B.009	414259	1568 ± 22	424-544 AD	Unidentified dicot poorly preserved	Fill of foundation cut for the fort wall
12	B.011	414260	3221 ± 21	1528-1437 BC	<i>Ziziphus/Paliurus</i>	Stony deposit in sounding at west end of trench below the fort occupation sequence
13	C.001	412651	1565 ± 21	415-560 AD	? <i>Prosopis</i> twig with pith	Lime kiln deposit south of fort

*Table 1: AMS dates from the fort.*